

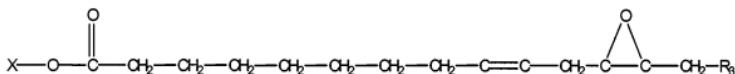
Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Previously presented) A transgenic plant containing at least one DNA construct, said construct comprising:

a) a nucleic acid encoding a polypeptide effective for catalysing the conversion of a substrate to a C16, C18, or C20 monounsaturated fatty acid product, wherein said polypeptide has at least 95% sequence identity to the amino acid sequence shown in SEQ ID NO:41, wherein said fatty acid product has the following structure:



wherein X is hydrogen, CoA, glycerol, a monoglyceride, a diglyceride, ACP, methyl, Na+, phosphatidylcholine, or phosphatidylethanolamine, and wherein R3 is C2, C4, or C6 alkyl; and

(b) a regulatory element operably linked to said nucleic acid encoding said polypeptide, wherein said regulatory element confers expression in a vegetative tissue of said plant.

2. (Original) The plant according to claim 1, wherein the double bond between the 9th and 10th carbons is *cis*.

3. (Original) The plant according to claim 1, wherein the double bond between the 9th and 10th carbons is *trans*.

4. (Original) The plant according to claim 1, wherein said regulatory element is a 5'-regulatory element.

5. (Original) The plant of claim 4, wherein said 5'-regulatory element confers expression in root tissue.

6-8. (Canceled).

9. (Original) The plant of claim 5, said plant having a significantly increased amount of a epoxy-fatty acid in roots of said plant relative to a corresponding plant that lacks said DNA construct.

10. (Original) The plant of claim 9, wherein said epoxy-fatty acid is vernolic acid.

11. (Original) The plant of claim 10, wherein said vernolic acid constitutes from about 0.1% to about 35% of the total fatty acid content of said roots.

12. (Previously presented) The plant of claim 4, wherein said 5'-regulatory element is selected from the group consisting of a potato ribosomal protein S27a Ubi3 promoter, a RB7 promoter, an alfalfa histone H3.2 promoter, an IRT2 promoter, an *Arabidopsis* FAD2 5'-UTR, an *Arabidopsis* FAD3 5'-UTR, a Ubi3 5'-UTR, an alfalfa histone H3.2 5'-UTR, and a CaMV35S 5'-UTR.

13. (Original) The plant of claim 1, wherein said regulatory element comprises a first 5'-regulatory element operably linked to a second 5'-regulatory element, wherein said first 5'-regulatory element is an Ubi3 promoter and said second 5'-regulatory element is selected from the group consisting of an *Arabidopsis* FAD2 5'-UTR, an *Arabidopsis* FAD3 5'-UTR, a potato ribosomal protein S27a 5'-UTR, a Ubi3 5'-UTR, and a CaMV35S 5'-UTR.

14. (Original) The plant of claim 4, wherein said DNA construct further comprises a 3'-regulatory element.

15. (Original) The plant of claim 14, wherein said 3'-regulatory element comprises a Ubi3 terminator or an E9 pea terminator.

16. (Original) The plant of claim 14, wherein said 5'-regulatory element is selected from the group consisting of an *Arabidopsis* FAD2 5'-UTR and an *Arabidopsis* FAD3 5'-UTR and said 3'-regulatory element is selected from the group consisting of an *Arabidopsis* FAD2 3'-UTR and an *Arabidopsis* FAD3 3'-UTR.

17. (Original) The plant of claim 16, wherein said 5'-regulatory element comprises SEQ ID NOS: 43 or 44 and said 3'-regulatory element comprises SEQ ID NO: 45.

18. (Original) The plant of claim 1, wherein said at least one DNA construct further comprises at least one regulatory element that confers expression in vegetative tissues of a plant operably linked to a nucleic acid that encodes a PDAT or DAGAT polypeptide.

19. (Original) The plant of claim 1, said plant further comprising a second DNA construct, said second DNA construct comprising at least one regulatory element that confers expression in vegetative tissues of a plant operably linked to a nucleic acid that encodes a PDAT or DAGAT polypeptide.

20. (Original) The plant of claim 1, wherein R₃ is C2 alkyl or C4 alkyl.

21-37. (Canceled).

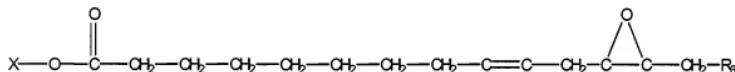
38. (Previously presented) The plant of claim 1, wherein said nucleic acid encoding said polypeptide has the nucleotide sequence shown in SEQ ID NO: 32.

39-53. (Cancelled).

54. (Original) The plant of claim 1, where said plant is selected from the group consisting of tobacco, tomato, soybean, corn, cotton, rice, wheat, banana, carrot, potato, strawberry and turf grass.

55. (Previously presented) A method of making the transgenic plant of claim 1, said method comprising introducing a construct into a plant, wherein said construct comprises:

a) a nucleic acid encoding a polypeptide effective for catalysing the conversion of a substrate to a C16, C18, or C20 monounsaturated fatty acid product, wherein said polypeptide has the amino acid sequence shown in SEQ ID NO:41, wherein said fatty acid product has the following structure:



wherein X is hydrogen, CoA, glycerol, a monoglyceride, a diglyceride, ACP, methyl, Na⁺, phosphatidylcholine, or phosphatidylethanolamine, and wherein R₃ is C2, C4, or C6 alkyl; and

(b) a regulatory element operably linked to said nucleic acid encoding said polypeptide, wherein said regulatory element confers expression in a vegetative tissue of said plant.

56. (Original) The method of claim 55, wherein said regulatory element of said construct is a 5'-regulatory element.

57. (Previously presented) The method of claim 56, wherein said 5'-regulatory element comprises a potato ribosomal protein S27a Ubi3 promoter, a RB7 promoter, an alfalfa histone H3.2 promoter, an IRT2 promoter, an *Arabidopsis* FAD2 5'-UTR, an *Arabidopsis* FAD3 5'-UTR, a Ubi3 5'-UTR, an alfalfa histone H3.2 5'-UTR, and a CaMV35S 5'-UTR.

58. (Original) The method of claim 56, wherein said regulatory element comprises a first 5'-regulatory element operably linked to a second 5'-regulatory element, wherein said first 5'-regulatory element is an Ubi3 promoter and said second 5'-regulatory element is selected from the group consisting of an *Arabidopsis* FAD2 5'-UTR, an *Arabidopsis* FAD3 5'-UTR, a potato ribosomal protein S27a 5'-UTR, a Ubi3 5'-UTR, and a CaMV35S 5'-UTR.

59. (Original) The method of claim 56, wherein said DNA construct further comprises a 3'-regulatory element.

60. (Original) The method of claim 59, wherein said 5'-regulatory element comprises SEQ ID NO: 43 or SEQ ID NO: 44 and said 3'-UTR comprises SEQ ID NO: 45.

61-73. (Canceled).

74. (Previously presented) An isolated nucleic acid comprising the nucleotide sequence set forth in SEQ ID NO:32.

75-78. (Canceled).

79. (Previously presented) A recombinant nucleic acid construct comprising at least one regulatory element that confers expression in a vegetative tissue of a plant, said regulatory element operably linked to a nucleic acid having the nucleotide sequence shown in SEQ ID NO:32.

80. (Original) The nucleic acid construct of claim 79, wherein said at least one regulatory element comprises a 5'-regulatory element having the nucleotide sequence set forth in SEQ ID NO: 43 or SEQ ID NO: 44.

81. (Original) The nucleic acid construct of claim 80, wherein said construct further comprises a 3'-regulatory element having the nucleotide sequence set forth in SEQ ID NO: 45.

82-85. (Canceled).

86. (Currently Amended) A transgenic plant harboring a DNA construct comprising a nucleic acid encoding a fatty acid epoxygenase polypeptide operably linked to a regulatory element conferring expression of said polypeptide in a vegetative tissue of said plant, wherein said polypeptide has the amino acid sequence shown in SEQ ID NO:42 41.

87-90. (Canceled).

91. (Original) The plant of claim 86, said plant having a significantly increased amount of a epoxy-fatty acid in roots of said plant relative to a corresponding plant that lacks said DNA construct.

92. (Original) The plant of claim 91, wherein said epoxy-fatty acid is vernolic acid.

93. (Original) The plant of claim 92, wherein said vernolic acid constitutes from about 0.1% to about 35% of the total fatty acid content of said roots.